

REMARKS

Claims 1-8 are pending in the Office Action. Claims 1 and 3-5 have been amended. Claims 9-11 have been added. The Specification has been amended to correct typographical or grammatical errors only. No new matter has been added. The rejections of the claims are respectfully traversed in light of the amendments and following remarks, and reconsideration is requested.

Drawings

A Replacement Sheet including amended FIG. 8 designated with a legend of "Prior Art" accompanies this Response to Office Action.

Specification

The disclosure is objected to because of informalities. The Specification has been amended according to the Examiner's suggestions.

Claim Objections

Claim 5 is objected to because of informalities. In particular the Examiner states that "being" (line 6) should read "each being". Claim 5 has been amended according to the Examiner's suggestion.

The Present Invention

Prior to distinguishing the cited references, Applicants direct the Examiner to advantageous features of the present invention, including the capability to not only raise a front part of a seat bottom but also to lower it back to the original state. As can be appreciated, this allows the restraint system of the present invention to be repeatedly used as opposed to the pyrotechnic or other prior systems which are destructive and cannot be repeatedly used.

The present invention may include a crash sensor, and in one embodiment includes a crash prediction sensor. Advantageously, the present invention allows for predicting the occurrence of a vehicle crash and for the restraint system to be deployed, partly or fully, before a crash actually takes place. The prediction could be wrong, and it is desirable that the restraint system can be retracted back to an undeployed position for future use.

Rejections Under 35 U.S.C. § 102

Claims 1 and 2 are rejected under 35 U.S.C. § 102(b) as being anticipated by JP Patent No. 05-2229378 to Yamamoto. In rejecting the claims, the Examiner writes in part:

Yamamoto discloses a vehicle occupant restraint system that includes . . . a crash sensor 32 (Fig. 1) with a crash prediction sensor and a control unit, a power actuator 26 (Fig. 1) moving the restraining member . . . such that the restraining member . . . can move from the retracted position to the deployed position and from the deployed position back to the retracted position.

Applicants submit that Yamamoto discloses an inflator 26 which supplies gas into a bag 30 upon detection of a large deceleration. An inflator means a pyrotechnical device that is capable of producing a large volume of gas from a small canister and is destructive and irreversible as well known in the art.

Claims 1, 2, and 4 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,556,160 to Mikami. In rejecting the claims, the Examiner writes in part:

Mikami discloses a vehicle occupant restraint system that includes . . . a crash sensor (see column 7, lines 47-51) with a crash prediction sensor and a control unit.

Applicants submit that Mikami discloses tilting a seat bottom backward to restrain the seat occupant from being thrown forward. However, this tilting movement is initiated by the forward movement of the seat bottom as a result of a deceleration of the vehicle or by using a manual switch that may be operated by a vehicle crew or a seat occupant ("If it is foreseen that the transportation means will be subjected to an impact force from the front side of the transportation means, . . . the seated person on each seat or a crew in the crew room of the transportation means can turn on the excitation switch . . . , thereby causing the seat member 12 to rotate selectively from the seating position to the inclined position.") (Mikami, col.7, lines 52-59) (emphases added). Applicants could find no mention of a crash sensor for predicting a crash and activating the restraint system when a crash is predicted.

In contrast, amended independent Claim 1 recites "a crash sensor for detecting and/or predicting an occurrence of a vehicle crash; and a power actuator for moving said restraining member from said retracted position to said deployed position via a power transmitting member upon detection and/or prediction of a vehicle crash by said crash sensor in such a manner that said restraining member . . . can be made to move from said retracted position to

said deployed position and from said deployed position back to said retracted position by a force transmitted from said power actuator to said restraining member via said power transmitting member; said crash sensor comprising a crash prediction sensor and a control unit for predicting an occurrence of a vehicle crash from an output of said crash prediction sensor, and said control unit being adapted to actuate said power actuator so as to raise said restraining member to an at least partly deployed position,” as recited in Claim 1.

Therefore, because Yamamoto and Mikami each do not disclose or suggest all the limitations of Claim 1, Claim 1 is not anticipated by either Yamamoto and Mikami and is thus patentable over the cited references.

Claim 4 is dependent on Claim 1 and contains additional limitations that further distinguish it from Yamamoto and Mikami. Therefore, Claim 4 is allowable over both Yamamoto and Mikami for at least the same reasons provided above with respect to Claim 1.

In view of the foregoing, Applicants respectfully request that the rejections under 35 U.S.C. § 102(b) be withdrawn.

Rejections Under 35 U.S.C. § 103

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Mikami in view of U.S. Patent No. 2,736,566 to Hartl. Applicants agree with the Examiner’s statement that “Hartl shows a system similar to that of Mikami wherein the system has a simple crash sensor . . . and a control unit (Fig. 4) that actuates a power actuator 8,9 (Fig. 1) to raise a restraining member 3 (Fig. 1) to a fully deployed position.”

In contrast, Claim 3 recites “a simple crash sensor for detecting an actual occurrence of a vehicle crash, and said control unit is adapted to actuate said power actuator so as to raise said restraining member to a partly deployed position according to an output of said crash prediction sensor and to raise said restraining member to a fully deployed position according to an output of said simple crash sensor.” Applicants could not find disclosure in any of the cited references directed toward a “partly deployed position” of the restraining member based upon a crash prediction sensor.

Claims 5-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mikami in view of U.S. Patent No. 3,550,953 to Neale and U.S. Patent No. 6,352,312 to Rees.

Claim 8 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Mikami in view of Neale and Rees and further in view of U.S. Patent No. 6,450,573 to Yamaguchi et al.

Neale, Rees, and Yamaguchi et al. do not remedy the deficiencies of Yamamoto, Mikami, and Hartl noted above with respect to Claims 1 and 3. Thus, because Claims 5-8 are dependent on Claim 1 and contain additional limitations that further distinguish them from the references of record, Claims 5-8 are allowable over the references of record for at least the same reasons provided above with respect to Claim 1.

In view of the foregoing, Applicants respectfully request that the rejections under 35 U.S.C. § 103(a) be withdrawn.

New Claims

Claims 9-11 have been added.

Claim 9 is dependent on Claim 1 and contains additional limitations that further distinguish it from the references of record. In particular, Claim 9 recites “a reversible mechanical actuator and an irreversible pyrotechnical actuator, said reversible mechanical actuator being adapted to raise said restraining member to said partly deployed position according to a signal from said crash prediction sensor, and said irreversible pyrotechnical actuator being adapted to raise said restraining member from said partly deployed position to said fully deployed position according to a signal from said simple crash sensor.” Therefore, Claim 9 is allowable over the references of record for at least the same reasons provided above with respect to Claim 1.

Similar to Claim 1, Claim 10 recites “a power actuator for moving said restraining member from said retracted position to said deployed position via a power transmitting member upon detection and/or prediction of a vehicle crash in such a manner that said restraining member can be made to move from said retracted position to said deployed position and from said deployed position back to said retracted position by a force transmitted from said power actuator to said restraining member via said power transmitting member; and a crash sensor for detecting and/or predicting an occurrence of a vehicle crash, said crash sensor comprising a crash prediction sensor and a control unit for predicting an occurrence of a vehicle crash from an output of said crash prediction sensor, and said control unit being adapted to actuate said power actuator so as to raise said restraining member to an at least

partly deployed position," and is thus patentable over the cited references for similar reasons as those provided above with respect to Claim 1.

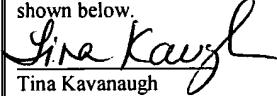
Claim 11 is dependent on Claim 10 and contains additional limitations that further distinguish it from the references of record. In particular, the cited references do not disclose or suggest "a control unit . . . adapted to actuate said power actuator so as to raise said restraining member to a partly deployed position according to an output of said crash prediction sensor and to raise said restraining member to a fully deployed position according to an output of said simple crash sensor." Therefore, Claim 11 is allowable over the references of record for at least the same reasons provided above with respect to Claim 10.

CONCLUSION

For the above reasons, Applicants believe pending Claims 1-11 are now in condition for allowance and allowance of the Application is hereby solicited. If the Examiner has any questions or concerns, the Examiner is hereby requested to telephone Applicants' Attorney at (949) 752-7040.

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Respectfully submitted,



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